WE CLAIM AS OUR INVENTION:

1. A method for generating a computed tomography image of a periodically moving organism of an organism, wherein the organ comprises a plurality of regions each having a rest phase and a movement phase, with the respective rest phases of different ones of said regions ensuing at different points in time, comprising the steps of:

(a) emitting an x-ray beam from a focus of an x-ray source and rotating at least said focus around said organ to irradiate said organ from a plurality of different directions, and detecting x-rays in said x-ray beam attenuated by said organ at each of said directions, thereby obtaining a plurality of projections of said organ, during at least one rotation of said focus around said organ and during a duration that is at least equal to one period of the periodic movement of the organ, each of said projections comprising projection data;

(b) analyzing said projection data to determine whether the projection data were acquired during a rest phase or during a movement phase of at least one of said regions of said organ; and

(c) reconstructing an image of said organ using only projection data acquired during the jeweilige Ruhephase respective rest phase of said at least one of said regions of said organ.

2. A method as claimed in claim 1 wherein step (b) comprising analyzing said projection data with regard to a plurality of said regions of said organ to determine whether the projection data were acquired during the respective rest phase or the respective movement phase of each of said plurality of regions, and

wherein step (c) comprises reconstructing a single image of said organ using only projection data acquired during the respective rest phase of each of said regions.

3. A method as claimed in claim 1 wherein step (a) comprises acquiring a sequence of test images of said organ in rapid succession, each of said test images being comprises of projection data, and wherein step (b) comprises analyzing the projection data of the test images by detecting movement artifacts in an image region of each test image containing said at least one region of said organ, and designating projection data in respective test images that are free of movement artifacts as having been acquired during the rest phase of said at least one of said regions.

4. A method as claimed in claim 3 comprising detecting movement artifacts by detecting at least one of line artifacts and double contours in the respective test images.

5. A method as claimed in claim 3 comprising detecting movement artifacts by forming respective difference images from respective pairs of successive test images.

6. A method as claimed in claim 3 comprising generating said test images with a computing power that is reduced compared to a computing power used to reconstruct said image of said organ in step (c).

7. A method as claimed in claim 3 comprising acquiring said test images with a reduced resolution in comparison to a resolution of said image of said organ reconstructed in step (c).

8. A method as claimed in claim 3 comprising acquiring said test images with only a partial rotation of said focus around said organ.

9. A method as claimed in claim 1 comprising, in parallel with the acquisition of said projections in step (a), acquiring a signal from said organ representing a physiological function of said organ, said signal reflecting said periodic movement of said organ, and wherein step (b) comprises identifying a time interval in said signal corresponding to the respective rest phase of said at least one of said regions, and identifying projection data for said region obtained during said time interval.

10. A method as claimed in claim 9 wherein said organ is a heart, and comprising acquiring an ECG as said signal.

11. A method as claimed in claim 10 comprising identifying said time interval occurring between two successive R-waves of said ECG.

12. A method as claimed in claim 11 comprising identifying said interval by identifying a predetermined first fraction of a period of the heart following a first of said two successive R-waves, and identifying said interval as a duration equal to a second predetermined fraction of said period following said first predetermined fraction.

13. A method as claimed in claim 9 comprising comparing said signal to a threshold criterion and activating said x-ray source to emit said x-ray beam to acquire said projections only during time segments wherein said threshold criterion is satisfied.

14. A computed tomography apparatus for generating an image of a periodically moving organ of an organism, said organ comprising a plurality of regions each having a rest phase and a movement phase, with the respective rest phases of different regions of said organ ensuing at different points in time, said computed tomography apparatus comprising:

an x-ray source having a focus from which an x-ray beam is emitted;

a radiation detector on which said x-ray beam is incident;

at least said focus of said x-ray source being rotatable around said organism to irradiate said organ in said organism from a plurality of different directions, and said radiation detector detecting radiation in said x-ray beam attenuated by said organ at each of said directions, thereby producing a plurality of projections, during at least one rotation of said focus around said organism and during a duration at least equal to a period of said movement of said organ, each of said projections comprising projection data; and

a computer supplied with said projection data, said computer analyzing said projection data to determine whether said projection data were acquired during a respective rest phase of at least one of said regions of said organ, and reconstructing an image of the organ using only projection data acquired during said respective rest phase of said at least one of said regions.

15. A computed tomography apparatus as claimed in claim 14 wherein said organ is the heart of said organism, and further comprising an ECG unit adapted to interact with the heart to obtain an ECG signal therefrom in parallel with said projections, said ECG unit supplying said ECG signal to said computer and said computer identifying a time interval from said ECG signal corresponding to said respective rest phase of said at least one of said regions, and said computer using only projection data obtain during said interval for reconstructing said image of the heart.